

Application No. 10/712,135  
Attorney Docket No. 20712-0091

**D) AMENDMENTS TO THE DRAWINGS**

None.

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### E) REMARKS

This Response is filed in response to the Office Action dated December 10, 2004.

Upon entry of this Response, claims 1-38 will be pending in the Application.

In the outstanding Office Action, the rejected claims 1-8 under 35 U.S.C. § 102(e) as being anticipated by Singh et al. (U.S. Patent Application 2004/0159113 A1); rejected claims 9-17 and 20-38 under 35 U.S.C. § 103(a) as being unpatentable over Singh et al. (U.S. Patent Application 2004/0159113 A1); and rejected claims 18 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Singh et al. (U.S. Patent Application 2004/0159113 A1) in view of Singh et al. (U.S. Patent No. 6,675,591).

Preliminarily, Applicant has submitted an amendment to the specification to correct a typographical error discovered while preparing this response to the office action. Replacement paragraph [0021] is submitted to correct the typographical error.

#### **Rejection under 35 U.S.C. § 102**

The Examiner rejected claims 1-8 under 35 U.S.C. § 102(e) as being anticipated by Singh et al. (U.S. Patent Application 2004/0159113 A1), hereinafter referred to as "Singh et al."

Specifically, the Examiner stated that

As per claim 1, Singh et al. discloses a system for monitoring an HVAC system comprising remote monitoring of an air conditioning system component (see for example paragraphs [0033], [0056], and [0057]), a remote monitoring unit 14, remote monitoring device 12 generating an alarm when the sensed condition is in a critical range (see for example paragraph [0006], lines 13-17), whereby remedial action is initiated (paragraph [0036], lines 6-14).

As per claims 2-8, Singh et al. discloses storing operating condition data, providing real-time information to the monitoring device regarding specifically identified components and operating condition information (paragraphs [0031] - [0033]).

As per claims 7 and 8, Singh et al. discloses notifying a service technician to implement corrective actions (i.e., dispatching work orders based on the alarms [paragraph [0036]]) and communicating with manufacturers (lower right of Figure 1A).

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Claim 1 as amended, is limited to one-way communication between the remote monitoring unit and the remote monitoring device to "one-way communication", consistent with claims 20-38. Singh does not include limitations or teachings to one-way communications, and therefore cannot anticipate the claim as amended. Claims 2-8, dependent on claim 1, also cannot be anticipated. Additionally, for the reasons set forth below with respect to claim rejections under §103(a), applicant believes that by limiting the communication between the remote monitoring unit and the remote monitoring device to "one-way communication".

Independent claim 1 and claims 2-8 depending therefrom are believed to be distinguishable from Singh et al. and therefore, are neither anticipated nor rendered obvious by Singh et al.

#### **Rejection under 35 U.S.C. § 103**

The Examiner rejected claims 20 and 32 under 35 U.S.C. § 103(a) as being unpatentable over Singh et al. (U.S. Patent Application 2004/0159113 A1).

Specifically, the Examiner stated that

As per independent claims 20 and 32, Singh et al. teaches all aspects of these claims (as already discussed above regarding claims 1-6), except the communication being one-way. Official notice is taken that simply restricting the communication of Singh et al. to a one-way communication does not patentably distinguish the claims over the prior art, since one-way communication is well-known in the art, and the system of Singh et al. is functionally capable of performing all the monitoring/alarming/initiating functions of these claims regardless of whether the communication is one-way or two-way.

Applicant respectfully traverses the rejection of claims 20 and 32 under 35 U.S.C. § 103(a). The examiner asserts that Singh et al. teaches all aspects of these independent claims (as discussed with respect to the rejections of claims 1-6 under §102), with the exception of one-way communication. Official notice is the basis for rejection set forth by the examiner, stating that "simply restricting the communication of Singh et al. to a one-way communication does not patentably distinguish the claims over the prior art. Since one-way communication is well-known in the art and the system of Singh et al. is functionally capable of performing all the

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monitoring/alarming/initiating functions of these claims regardless of whether the communication is one-way or two-way."

The examiner has provided no documentary evidence in support of his contention that one-way communications is well known in the art. Moreover, the examiner offers no scientific or technical rationale to support his conclusion that one-way communication is common knowledge, and in particular that one-way communication employed in remote monitoring diagnostics is well known. Applicant respectfully demands that the examiner produce authority for his statement taking official notice of the use of one-way communication in remote monitoring diagnostics.

The examiner fails to appreciate the novelty of the way in which one-way communication is employed in the system and method of the present invention, to allow an outside entity, such as an equipment manufacturer, to monitor critical operations of the owner's facility or facilities, yet also provide complete protection from security risks such as hackers. It is well known that open communication ports may be exploited by hackers to gain access to computer networks containing sensitive data, and in some instances, to gain control of systems and devices connected to a computer network. The use of one-way communications eliminates the risk of any malicious communications being received from an external source such as a hacker or a virus, yet still allows the manufacturer to obtain vital information about operation of the equipment to assess whether corrective action by a third party is necessary. All of this is accomplished while eliminating concerns that hackers have infiltrated the system to provide false data, or more seriously, to adversely affect operation of the HVAC system itself, since the one-way protocols prohibit access to remote monitoring unit memory or system operation.

In Fig.1B, the management center components 20, 22, 24 are linked to the Internet. In Par. [0031], for example, Singh et al. indicates that a communication network is provided for operably interconnecting the management center 12 and the remote location 14, enabling information transfer therebetween. The management center 12 is able to monitor and analyze operation of multiple locations 14 and to adjust the operation of the monitored systems to improve performance. Further, in Par. [0036], Singh et al. states that "maintenance managers will use the GUI 20 to receive alarms for a specific remote location 14, acknowledge alarms

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(and) ... make changes to set points. (Emphasis added) This is a clear indication that the inventors in Singh et al. did not consider using one-way communications as a security feature and did not appreciate the advantages offered by such one-way communication. Singh et al. further discloses a firewall 26 disposed between the remote site 14 and the management center 12, as shown in Fig. 1A. Clearly, by providing the ability to adjust system operations and to change set points, and by providing a firewall, Singh et al. contemplates that there will be bi-directional data traffic flowing between the Internet and the secured network. The ability to make adjustments and change set points from a remote location is precisely the vulnerability that a hacker may exploit. The one-way communication feature of the present invention avoids such vulnerability. Moreover, firewalls typically implement rules based on past experience, to prevent certain types of communications. However, hackers are known to develop new methods of circumventing firewall rules to gain access to data networks. Thus, Singh et al. does not suggest the use of one-way communication in a remote monitoring system. On the contrary, Singh et al. teaches a two-way communications link and even with the presence of a firewall, is susceptible to penetration that the current system is secure from. Therefore, in view of the above, independent claims 20 and 32 are believed to be distinguishable from Singh et al. and therefore are not anticipated nor rendered obvious by Singh et al. and are therefore allowable.

The Examiner rejected claims 9-17, 21-31 and 33-38 under 35 U.S.C. § 103(a) as being unpatentable over Singh et al. (U.S. Patent Application 2004/0159113 A1).

Specifically, the Examiner stated that

As per claims 9 and 21, Singh et al. does not specifically state that the HVAC system is a chiller. However, chillers are broadly known and used types of HVAC systems that would be an obvious type of system to monitor using the system of Singh et al. for the purpose of monitoring the efficiency of the chiller components, since the monitoring system of Singh et al. is broadly applicable to many types of systems of which a chiller is simply one potential example.

As per claims 13, 25, and 37, Singh et al. teaches monitoring compressors and condensers, which are common components of rooftop units (see for example paragraph [0057]).

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As per claims 10-12, 14, 15, 22-24, 26, 27, 36, and 38, Singh et al. discloses a control panel/monitor control device 140 and communication gateway 16 for communication with remote device 12.

As per claims 16, 17, and 28, Singh et al. teaches programmable computer 140.

As per claims 29 and 30, official notice is taken that memory and disk drives are common components of computer systems such as controller 140 of Singh et al., and such would have been obvious to one of ordinary skill in the art.

As per claim 31, Singh et al. does not specifically teach signaling means to generate a connection, but official notice is taken that such remote connection systems are old and well-known in the art remote monitoring systems and would have been obvious to the one of ordinary skill in the art to apply to the system of Singh et al. for the purpose of controlling the flow of data from the local to the remote device.

As per claims 33 and 34, see discussion of respective similar claims 6 and 5, above.

As per claim 35, see discussions above regarding chillers (claim 9) and control panels.

Applicant submits that dependent claims 9-17, 21-31 and 33-38 are distinguishable from Singh et al. for at least the following reasons. To begin, dependent claims 9-17, 21-31 and 33-38 are believed to be distinguishable from Singh et al. as depending from what are believed to be allowable independent claims 1 (as amended), 20 and 32 as discussed above. Therefore, in view of the above, dependent claims are not anticipated nor rendered obvious by Singh et al. In addition, claims 9-17, 21-31 and 33-38 recite further limitations that distinguish over the applied art. It is respectfully submitted that claims 9-17, 21-31 and 33-38 are therefore allowable.

The Examiner rejected claims 10-12, 14, 15, 22-24, 26, 27, 36, and 38 under 35 U.S.C. § 103(a) as being unpatentable over Singh et al. (U.S. Patent Application 2004/0159113 A1).

Specifically, the Examiner stated that

As per claims 10-12, 14, 15, 22-24, 26, 27, 36, and 38, Singh et al. discloses a control panel/monitor control device 140 and communication gateway 16 for communication with remote device 12.

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With respect to claims 12, 14, 24, 27, 36 and 38, the present invention further claims that the remote monitoring unit is also in one-way communication with the microgateway (in the case of a chiller), and with a monitor control interface (MCU) in the case of a rooftop unit. This feature provides an additional layer of protection and further prevents a security breach being initiated by a hacker at the remote monitoring unit located at the site of the air conditioning component. This one-way communication path provides a second layer of security preventing hackers from tampering with the microgateway or MCU from the remote monitoring unit, as described at Par. [0035] of the specification. Thus, claims 12, 14, 24, 27, 36 and 38 are further distinguishable from Singh et al., which specifically teaches two-way communication and its advantages, thereby teaching away from one-way communication, the first between the remote monitoring unit and the remote monitoring device, and the second being between the remote monitoring unit and the local components, i.e. microgateway or MCU. The advantages of one-way communication are not appreciated by Singh et al.

Applicant submits that dependent claims 12, 14, 24, 27, 36 and 38 are distinguishable from Singh et al. for at least the following reasons. To begin, dependent claims 12, 14, 24, 27, 36 and 38 are believed to be distinguishable from Singh et al. as depending from what are believed to be allowable independent claims 1 (as amended), 20 and 32 as discussed above. Therefore, in view of the above, dependent claims are not anticipated nor rendered obvious by Singh et al. In addition, claims 12, 14, 24, 27, 36 and 38 recite further limitations that distinguish over the applied art. It is respectfully submitted that claims 12, 14, 24, 27, 36 and 38 are therefore allowable.

The Examiner rejected claims 18 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Singh et al. (U.S. Patent Application 2004/0159113 A1) in view of Singh et al. (U.S. Patent 6,675,591 B2) (hereinafter "the '591 patent").

Specifically, the Examiner stated that

Claims 18 and 19 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Singh et al. (U.S. Patent Application 2004/0159113 A1) in view of Singh et al. (U.S. Patent 6,675,591 B2)

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As per claims 18 and 19, U.S. Patent Application 2004/0159113 A1 does not teach the non-normal/critical, time/temperature controls recited. U.S. Patent 6,675,591 B2 by the same inventors teaches sending an alarm when the control parameter is outside a normal range (above the ideal temperature), but below a critical range (below alarm limit) for a certain period of time (see Figure 6; column 10, lines 19-41). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine this feature with the system of the Singh et al. application for the purpose of refining the alarm control system, since this is simply another aspect of the same general system taught by the exact same inventors.

Applicant respectfully submits that the Examiner has improperly combined Singh et al. and the '591 patent. Because Singh et al. has two-way communication between the monitoring unit and the HVAC system, there is no need for Singh et al. to implement non-normal/critical time/temperature controls. Singh et al. can implement continuously modifications to the HVAC as they occur since it has two-way communication. The present invention, unlike Singh et al., cannot remotely adjust operation of the unit and therefore must be capable of distinguishing a non-normal alarm from a critical alarm and be able to provide alarm history to a third party technician when a critical alarm indicates service is necessary. Further, a review of Fig. 6 and col. 10, lines 19-41 of the '591 patent reveals that the '591 is not sending an alarm when the control parameter is below a critical range but outside a normal range. On the contrary, Singh et al. merely provides an alternate critical parameter. The first critical parameter of the '591 patent is time/ temperature, which has as a disadvantage the inability to consider bacteria count. Thus, a second critical parameter is monitored for alarming, the second critical parameter based upon degree/minutes criteria. Thus, the '591 patent discloses alarming either the first critical parameter or the second critical parameter. The '591 patent does not suggest sending an alarm when the control parameter is approaching a critical range (i.e., outside a normal range). Therefore, applicant submits that it would not have been obvious to one of ordinary skill in the art to combine the '591 with Singh et al. for the purpose of refining the alarm control system. Applicant further submits that given the two-way communication capabilities of Singh et al., there is no motivation to combine it with the '591 patent as suggested.

Therefore, in view of the above, dependent claims 18 and 19 are believed to be distinguishable from Singh et al. and/or the '591 patent, and therefore are not anticipated nor



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rendered obvious by Singh et al. and/or the '591 patent. In addition, claims 18 and 19 recite further limitations that distinguish over the applied art. In conclusion, it is respectfully submitted that claims 18 and 19 are not anticipated nor rendered obvious by Singh et al. and/or the '591 patent, and are therefore allowable.

The Examiner rejected claim 31 under 35 U.S.C. § 103(a) as being unpatentable over Singh et al. (U.S. Patent Application 2004/0159113 A1).

Specifically, the Examiner stated that

As per claim 31, Singh et al. does not specifically teach signaling means to generate a connection, but official notice is taken that such remote connection systems are old and well-known in the art remote monitoring systems and would have been obvious to the one of ordinary skill in the art to apply to the system of Singh et al. for the purpose of controlling the flow of data from the local to the remote device.

With respect to claim 31, the examiner again has taken official notice as the basis for rejection. The examiner has provided no documentary evidence in support of his contention that remote connections generated by signaling means are old and well-known in the art, and would have been obvious to one of ordinary skill in the art to apply to the system of Singh et al. for the purpose of controlling the flow of data from the local to the remote device. Moreover, the examiner offers no scientific or technical rationale to support his conclusion that remote connections generated by signaling means are old and well-known in the art, and would have been obvious to one of ordinary skill in the art, and in particular that remote connections generated by signaling means employed in remote monitoring diagnostics with one-way communication therebetween is well-known. Applicant respectfully demands that the examiner produce authority for his statement taking official notice of the use of remote connections generated by signaling means are old and well-known in the art, and would have been obvious to one of ordinary skill in the art of one-way communication remote monitoring diagnostics to achieve the advantages provided by the present invention. One-way communication is but one aspect of the invention.

As discussed above with respect to one-way communication, Singh et al. neither teaches nor suggests one-way communication. The use of the signaling means in the present invention

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further ensures the security of the local connection. It is notable that the signaling means serves the limited purpose of identification of the remote monitoring device through a known telephone number or IP address. This way the remote monitoring unit verifies the source that is transmitting the query request signal. The query request is merely to notify the remote monitoring unit that additional data must be transmitted to the remote monitoring device for further analysis. There is no capability of transmitting data or control signals from the remote monitoring device to the remote monitoring unit, thus one-way communication is maintained.

Applicant has amended claim 31 to include the limitation that the means to signal the remote monitoring unit is through a secure identification protocol to query the remote monitoring unit. Support for this amendment can be found at Par. [0032] of the specification. Accordingly, applicant submits that claim 31 is further distinguishable from Singh et al., for the reason that a secure identification protocol to query the remote monitoring unit is neither disclosed nor suggested by Singh et al.

Therefore, in view of the above, dependent claim 31 is believed to be distinguishable from Singh et al., and therefore are not anticipated nor rendered obvious by Singh et al. In addition, claim 31 recites further limitations that distinguish over the applied art. In conclusion, it is respectfully submitted that claim 31 is not anticipated nor rendered obvious by Singh et al., and is therefore allowable.

### **CONCLUSION**

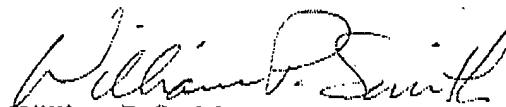
In view of the above, Applicant respectfully requests reconsideration of the Application and withdrawal of the outstanding objections and rejections. As a result of the amendments and remarks presented herein, Applicant respectfully submits that claims 1-38 are not anticipated by nor rendered obvious by Singh et al. or the '591 patent, or their combination and thus, are in condition for allowance. As the claims are not anticipated by nor rendered obvious in view of the applied art, Applicant requests allowance of claims 1-38 in a timely manner. If the Examiner believes that prosecution of this Application could be expedited by a telephone conference, the Examiner is encouraged to contact the Applicant.

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The Commissioner is hereby authorized to charge any additional fees and credit any overpayments to Deposit Account No. 50-1059.

Respectfully submitted,  
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